

REMARKS/ARGUMENTS

Reconsideration of this application in light of the above amendments and following comments is courteously solicited.

Applicants by the instant amendment have added new independent claims 44, 45 and 46. Previously rejected claims 16-34 and 41-43 have not been amended and remain pending.

Applicants respectfully request the Examiner to reconsider his rejection of claims 16-34 and 41-43 for the reasons set forth hereinbelow.

The Examiner has rejected previously submitted claims 16-34 and 41-43 under 35 U.S.C. 103 as being unpatentable over Wohlwend (U.S. 6,106,747) in view of the Halloran letter dated April 6, 2004. Applicants submit that the Examiner's rejection is in error and should be withdrawn.

Wohlwend teaches the use of purely empirical enlargement factors. For a given material and a given presinter temperature, the enlargement factor is assumed to be a constant. In other words Wohlwend teaches the use of a "one-size fits all" parameter for similar blanks. This is in sharp contrast to the invention. Here, the enlargement factor is derived for each individual blank in a scientific and reproducible manner by taking into account the relative densities of the blank before and after sintering. However, Wohlwend does neither disclose that the enlargement factor may be calculated on the base of a measurable parameter of the blank nor does Wohlwend disclose that there is a relation between relative densities of the blank and the enlargement factor. Consequently, Wohlwend does not at all imply that there is a linear relationship between the enlargement factor and the shrinkage of the blank.

The derivation of the claimed formula presented by the Examiner (Page 4, last paragraph - Page 5, first paragraph) is

only valid when assuming two very important preconditions: Firstly, exact mass conservation during sintering has to be assumed. Secondly, a blank with homogeneous density distribution has to be provided. Only under these two preconditions, the enlargement factor is independent of the position in the blank and isotropic in all directions. In other words, only if said preconditions are fulfilled, an isotropic and position independent shrinkage of the blank will occur during sintering. It is important to note that these relationships have only been disclosed in the present patent application. In general, one has to assume a non-isotropic enlargement factor which is additionally dependent on the position in the blank with ceramic materials. This fact is reflected in that the prior art only mentions empirical enlargement factors which represent averaged values and thus are much less precise. The derivation of the claimed formula presented by the Examiner is therefore only possible when being aware of the invention.

The Halloran letter dated 2004 does not constitute prior art. Furthermore, the Halloran letter has to be interpreted in view of the following initial position: *"At issue is if the 'enlargement factor' as defined in the patent application, is specified well enough for one skilled in the art to make use of the invention."* (Halloran letter, page 1, second paragraph). One has therefore to assume that the statements in the Halloran letter presuppose knowledge of the content of the present application. In other words, the Halloran letter can only be interpreted in view of the invention. Consequently, the Halloran letter solely proves that a person skilled in the art is able to make use of the invention described in the patent application. Nothing more.

However, the Halloran letter just states that enlargement factors are known in ceramic technology and that they may be

calculated from the starting density and the sintered density. Noteworthy, Halloran is completely silent about how to do this. No scientific model or mathematical relation is disclosed at all. An indication that the homogeneity of the blank may be important is missing as well. Therefore, even when the Halloran letter is considered, it does not at all provide the indispensable facts that would allow the person skilled in the art to derive the claimed formula in an obvious manner.

In summary, the Examiner argues from a retrospective point of view. Without the knowledge disclosed in the present patent application, there is no evidence in the prior art which could render the invention as claimed obvious.

With regard to the added claims 44-46, Applicants believe that each of the independent claims is patentable over the prior art for the reasons set forth hereinbelow.

Independent claim 44 adds to previously submitted independent claim 16 the additional process step of supplementing an incomplete positive model by computer technology. Support for this limitation can be found on page 4, lines 7-12 of Applicants' specification. Suffice it to say that there is nothing in the prior art cited by the Examiner which suggests the additional process step of supplementing an incomplete positive model with computer technology. Accordingly, it is respectfully submitted that claim 44 is patentable over the prior art for the reasons set forth above with regard to independent claim 16 and for the additional reason that the prior art fails to teach the further process step of supplementing an incomplete positive model by computer technology.

Independent claim 45 is based on pending claim 16. Additionally, two process steps have been included. The first additional process step is related to the application of data for

the enlargement factor on the blank or an attachment label after calculating said enlargement factor. The second additional process step deals with the reading of the data applied on the blank before enlarging the digital description of the positive model. These additions are supported by the description, page 8, lines 22-26.

These additional process steps ensure that each blank is labeled with its individually calculated enlargement factor and that the specific enlargement factor of the blank is used for further processing of the blank. Mixing up of individual enlargement factors of different blanks and reading of wrong enlargement factors for further processing can be avoided at the best.

In view of the prior art, these additional process steps are novel and non-obvious for the following reasons: Since Wohlwend teaches the use of general and non-individual enlargement factors, there is no need to apply individual information related to the enlargement factor on each blank. Consequently, Wohlwend does not mention at all that enlargement factors may be applied on the blank. In this context, Moermann et al. (U.S. 4,615,678) mention that a holding part for a blank may feature a code-bearing surface which permits general information about the shape and physical properties of the blank (Col. 2, lines 35-50). However, specific examples given by Moermann et al. are related to the detection of the size, material or presence of the blank. Obviously, this kind of information is not at all related to enlargement factors. Therefore, the person skilled in the art would not have considered the application of information on the enlargement factor on a blank.

Finally, independent claim 46 is based on pending claim 16. Additionally, the removing of an outer layer of the blank has been

included. These additions are supported by the description, page 13, lines 35-38.

This additional process step will insure that any existing density gradients in the outer material shell of the blank are removed. Consequently, the homogeneity of the blank is raised to a level which allows for application of the claimed formula for the enlargement factor.

None of the cited references provides any indication of such a process.

In light of the foregoing, it is respectfully submitted that all of the claims as pending patentably define over the art of record and the early issuance of a formal notice of allowance is respectfully requested.

An earnest and thorough attempt has been made by the undersigned to resolve the outstanding issues in this case and place same in condition for allowance. If the Examiner has any questions or feels that a telephone or personal interview would be helpful in resolving any outstanding issues which remain in this application after consideration of this amendment, the Examiner is courteously invited to telephone the undersigned and the same would be gratefully appreciated.

It is submitted that the claims as amended herein patentably define over the art relied on by the Examiner and early allowance of same is courteously solicited.

If any fees are required in connection with this case, it is respectfully requested that they be charged to Deposit Account No. 02-0184.

Respectfully submitted,

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